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EXAMINER	
JARRETT, SCOTT L	
ART UNIT	PAPER NUMBER
3623	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/30/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 09/867,068	Applicant(s) SCHEER, ROBERT H.	
	Examiner Scott L. Jarrett	Art Unit 3623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 08 January 2007.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-5,9,10 and 12-14 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-5,9,10 and 12-14 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

1. This **Final** Office Action is in response to Applicant amendments filed January 8, 2007. Applicant's amendments canceled claims 6-8, 11 and 15-22 and amended claims 1-5, 9-10 and 12-14. Currently claims 1-5, 9-10 and 12-14 are pending.

Response to Amendment

2. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action.

It is noted that the applicant did not challenge the Official Notice(s) cited in the previous Office Action(s) therefore those statements as presented are herein after prior art. Specifically it has been established that it was old and well known in the art at the time of the invention:

- to use of intelligent agents (artificial intelligence, agent based systems) in e-Business, eCommerce and Supply Chain Management;

- that a network of intelligent software modules (agents) can together dynamically (collaboratively) manage the supply chain wherein each module (agent) is an: expert at its task, thereby optimizing its goals; coordinates its decisions with other modules, thereby optimizing supply chain wide goals; and can quickly responds to changes in cooperation with other modules;

- to have a logistics/transportation provider participate in a supply chain network wherein the logistics/transportation business provides a mechanism for the planning

and management of materials (items, resources, etc.) flow/movement between/amongst the plurality of enterprises in the supply chain network;

- that one of the responsibilities/goals of a supply chain and other business systems related to the flow of materials is to ensure that items are moved within the supply chain as desired (e.g. on-time, right place, right time, etc.) and that if the items are not being moved within the supply chain according to plan/schedule (as desired) that the system/supply chain needs to take corrective action to prevent the system/supply chain interruptions due errant (missing, misrouted, incorrect, late, etc.) materials; and

- to utilize messaging (messages, queues, brokers, etc.) technologies, systems, design patterns and the like in intelligent agent systems in order to provide an efficient mechanism for managing the dynamic collaboration between agents.

Response to Arguments

3. Applicant's arguments with respect to claims 1-5, 9-10 and 12-14 have been considered but are moot in view of the new ground(s) of rejection.

Information Disclosure Statement

4. The information disclosure statement filed on May 29, 2001 has been made part of the record in the application. It should be noted that the submitted IDS constitutes *five* Pages and lists over a thousand Pages of reference material. The applicant is invited to specifically point out those references, and specifically the portions of those references, that may be pertinent to the claimed invention.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-5, 9-10 and 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kirkevold et al., U.S. Patent No. 6,263,322 in view of Huang, U.S. Patent No. 5,953,707 and further in view of Graves, Stephen, A Multiple Item Inventory Model with a Job Completion Criterion (1982).

Regarding Claim 1 Kirkevold et al. teach a supply chain network (repair network) comprising:

- entering work order (repair order, service request, etc.) information identifying a piece of equipment (good, product, instrument, vehicle, etc.) to be repaired and one or more items (resources, parts, equipment, materials, suppliers, documentation, labor, tasks, repair notes, repair history, etc.) expected to be used during a repair procedure, via a subsystem (server, computer, user, customer maintenance system; Column 3, Lines 35-65; Column 5, Lines 8-45; Column 6, Column 20, Lines 20-47; Figure 1, Elements 28, 32; Figure 2);

- extracting (retrieving, accessing, pulling, etc.) from the entered work order (repair order, service request, etc.) information that identifies at least the items expected to be used during the repair procedure and creating a notice (message, advanced

demand notice order, order, request, etc.) for the items, via a subsystem (agent, server, software, subroutine, customer agent server, etc.; Column 3, Lines 40-48; Column 6, Lines 13-22, 45-68; Column 12, Lines 60-68; Column 13, Lines 1-5, 58-63; Column 17, Lines 35-68); and

- determining, scheduling and procuring the items extracted from the work order prior to the commencement of the repair procedure in response to the receipt of the (advanced demand notice, extracted information from work order) notice ("Get Parts", "Request Part Order", "Delivery Schedule", "Get Labor", "Get Repair Doc", etc.; Column 6, Lines 13-68; Column 7, Lines 1-59; Column 11, Lines 34-68).

Kirkevold et al. does not expressly teach calculating a probability that each of the items will need to be used during the repair procedure and determining based on the calculated probabilities at which one of the geographic locations the items need to be positioned prior to the commencement of the repair procedure in response to the receipt of the notice as claimed.

Huang et al. teaches determining based on a plurality of demand information (advanced order notice, forecasted, actual, orders, failure rates, etc.;) at which one of the geographic locations items need to be positioned (stocked, provisioned, inventoried) in a supply chain (repair chain) network prior to the commencement of one or more repair procedures, via a Decision Support System (Requirements Management Process; Column 8, Lines 43-55; Column 12, Lines 51-68; Column 14, Lines 21-64;

Column 16, Lines 4-63; Column 17, Lines 1-35; Column 30, Lines 34-59; Figures 2, 6, 9, 25; Inventory/Stock Management, Provisioning, Procurement; Column 26, Lines 4-65; Column 68, Lines 55-68; Column 31, Lines 29-35, 65-68) in an analogous art of supply/repair chain management for the purposes of enabling businesses to manage/view the complete/end-to-end view of the supply chain (Column 1, Lines 18-26) as well as to determine the repair time requirements based on item availability and the equipment failure (equipment, parts, locations, etc.; Column 16, Lines 4-16).

Specifically Huang et al. teach that "The Requirements Management Process 98 concentrates on the activities associated with requirements estimation. The objective of this process is to estimate future repair requirements generated by equipment failures. Equipment has several repairable parts and equipment failures are caused by failures of the repairable parts. Hence estimating future requirements refers to the process of estimating failures of the equipment and of the repairable parts that caused the failures. This is done to estimate repair time requirements (determined in Requirements-Supply Reconciliation Planning Process) and equipment availability at equipment locations, both of which depend on the part that has failed." (Column 16, Lines 5-16; Figure 9) and that "The supply management 102 (see FIG. 9) is a process to determine the repair plan considering repair people, test equipment and key components. It starts by the translation of the aggregate repair plan into a detailed plan concerning repair resources (repair persons and test equipment), and component requirements. Based on these requirements and the capacity constraints for the repair resources, repair personnel and key components, a detailed repair plan is developed using an optimized based

modeling approach. The detailed repair plan is used to generate the key component delivery schedule to be transmitted to the component suppliers. In addition, the supply management process 102 is also concerned with the development of appropriate procurement policies for key components in terms of identifying the policies, and deriving the corresponding policy parameters." (Column 17, Lines 20-36).

It would have been obvious to one skilled in the art at the time of the invention that the system and method for managing work orders as taught by Kirkevold et al. with its ability to schedule, procure and provision a plurality of items necessary for a repair procedure would have benefited from determining, based on the required repair items extracted from the work order, the geographic locations in a supply chain/repair network to position the items prior to the commencement of the repair in view of the teachings of Huang et al.; the resultant system/method enabling businesses to determine repair time requirements based on item availability and the equipment failure (equipment, parts, locations, etc.; Huang et al.: Column 16, Lines 4-16).

While Kirkevold et al. and Huang et al. teach the positioning (stocking, procuring, etc.) of items necessary for a repair procedure based on a plurality of factors including but not limited to estimated equipment failure rates (i.e. the rate at which the failed items will necessitate repair/replacement) neither Kirkevold et al. nor Huang et al. expressly teach that the items are stocked/positioned based on a calculated a *probability* that each of the items will need to be used during the repair procedure as claimed.

Graves, teaches a well-known method for calculating a probability that an item and/or set of items will need to be used during the repair procedure (Paragraphs 2-3, Page 1335; Equations 1-3) in an analogous of equipment repair management for the purposes of determining the items (spare part kits) to be positions (carried) by service technicians that minimize inventory investment/cost (Abstract, Paragraph 1, Page 1334; i.e. classic tool-kit, car-trunk, knapsack provisioning/positioning problem).

It would have been obvious to one skilled in the art at the time of the invention that the transaction network for determining positioning of items within a supply chain that is distributed over a plurality of geographic locations as taught by the combination of Kirkevold et al. and Huang et al., with its ability to position items necessary for a repair based on factors such as equipment failure rates, would have benefited from calculating a *probability* that each of the items will need to be used during the repair procedure and stocking/positioning the items based on the calculated probabilities in view of the teachings of Graves; the resultant system/method enabling businesses to minimize repair costs (inventory cots, extra trips, repair delays, etc.) by positioning/stocking the "optimal mix" of items (components) at the geographic location that the repair procedure is conducted (Graves: Abstract; Paragraph 1, Page 1334).

Regarding Claim 2 Kirkevold et al. teach a supply chain system and method further comprising initiating a replenishment at a geographic location within the supply

chain of items that are determined in response to the notice (advance demand notice, repair/work order) to a geographic location (repair facility, shop, etc.).

Kirkevold does not expressly teach determining a need repositioning to a new geographic location within the supply chain as claimed.

Official notice is taken the determining a need to reposition (redistribute, transshipment, emergency order, leveling, etc.) items in a supply chain based on demand (orders, ship notices, etc.) for those items is old and very well known. For example the repositioning of items in a supply chain enables the supply chain to provision itself (i.e. order/move items from one location to another), which can reduce the cost (time, money, etc.) of procuring the item from a location (supplier) outside of the supply chain.

It would have been obvious to one skilled in the art at the time of the invention that the system and method for determining the position of items within a repair supply chain as taught by the combination of Kirkevold et al. Huang et al. and Graves would have benefited from repositioning items within the supply chain in order to meet item demand in view of the teachings of official notice.

Regarding Claims 3-4 Kirkevold et al. teach a supply chain system and method further comprising a computerized maintenance and management system and an

enterprise asset management system (Column 3, Lines 32-68; Column 4, Lines 25-64; Figure 1).

Regarding Claim 5 Kirkevold et al. teach a supply chain system and method further comprising extracting information from the system (subsystem, customer maintenance, program, object, data store, etc.) in response to a user entering or modifying a work order, via an intelligent agent (person, expert system, software program, subroutine, etc.; Column 3, Lines 40-48; Column 6, Lines 13-22, 45-68; Column 12, Lines 60-68; Column 13, Lines 1-5, 58-63; Column 17, Lines 35-68).

Regarding Claim 9 Kirkevold et al. teach a supply chain system and method further comprising coordinating to assist in positioning items at a geographic location within the supply chain as determined to be needed by the system in response to the receipt of the notice (advanced demand notice, repair/work order; Column 6, Lines 13-68; Column 7, Lines 1-59; Column 11, Lines 34-68).

Kirkevold et al. does not expressly teach positioning items at *geographic locations* within a supply chain determined to be needed by the system in response to the receipt of the notice as claimed.

Huang et al. teach positioning items at *geographic locations* within a supply chain determined to be needed by the system in response to the receipt of demand (notice,

orders, forecasts, etc.; inventory stocking, replenishment; Column 26, Lines 6-65; Column 31, Lines 29-35; 65-68; Column 68; Lines 55-68) in an analogous art of equipment repair management for the purposes of ensuring that the items required for the repair procedure are available/scheduled (repair plan; Column 17, Lines 20-36).

It would have been obvious to one skilled in the art at the time of the invention that the equipment repair system and method as taught by Kirkevold et al. with its ability to provision, procure and schedule the items necessary for a repair based on information extracted from the repair work order would have benefited from positioning items at more than one geographic location in a repair supply chain in response to the receipt of advance demand information in view of the teachings of Huang et al.; the resultant system/method enabling businesses to develop a repair plan that accounts for the items required for the repair procedure are available and/or scheduled (Huang et al.: procurement policy, replenishment planning; Column 17, Lines 20-36; Column 31, Lines 30-36; 63-68).

Regarding Claim 10 Kirkevold teach a supply chain system and method further comprising monitoring positioning (inventory, stock, location, availability, etc.) of items at a geographic location within the supply chain (e.g. shop management system is connected to vendor/supplier systems/databases at remote locations; Figure 1; Column 4, Lines 56-64), via an subsystem (intelligent agent, person, system, subroutine, object, program, code, subsystem, etc.; Column 3, Lines 32-68; Figure 1).

Kirkevold does not expressly teach monitoring positioning of items at *geographic locations* within the supply chain as claimed.

Huang et al. teach monitoring positioning of items at *geographic locations* within the supply chain (Column 26, Lines 4-65; Column 68, Lines 55-68; Column 31, Lines 29-35, 65-68) in an analogous art of equipment repair management for the purposes of replenishment and procurement planning (Column 17, Lines 20-36; Column 31, Lines 30-36; 63-68).

It would have been obvious to one skilled in the art at the time of the invention that the equipment repair system and method as taught by Kirkevold et al. with its ability to provision, procure and schedule the items necessary for a repair based on information extracted from the repair work order at a geographic location would have benefited from monitoring the positioning of items at *geographic locations* within the supply chain in view of the teachings of Huang et al.; the resultant system/method enabling businesses to develop a repair plan that accounts for the items required for the repair procedure are available and/or scheduled (Huang et al.: procurement policy, replenishment planning; Column 17, Lines 20-36; Column 31, Lines 30-36; 63-68).

Regarding Claim 12 Kirkevold et al. does not expressly teach forming a corrective fulfillment plan as claimed.

Official notice is taken taking corrective (backup, alternative, emergency, etc.) actions within a supply chain when it is determined that the items are not being position within the supply chain as determined to be needed by the system in response to the receipt of the notice (advanced demand notice, message, call, etc.) is old and well known. For example, a repair network orders a part for an upcoming repair but the part is not available from the or at the planned location (vendor, supplier, shop, etc.) so the system and/or service technician has the required item overnighted to the repair facility (corrective fulfillment plan/action) so the repair can commence as scheduled.

It would have been obvious to one skilled in the art at the time of the invention that the system and method as taught by the combination of Kirkevold et al., Huang et al., and Graves would have benefited from taking corrective actions (i.e. forming correction fulfillment plans) to ensure the availability of the items necessary for the repair procedure in view of official notice.

Regarding Claim 13 Kirkevold teach a supply chain system and method further comprising an equipment (instrument, product, etc.) knowledge base (database, file, paper file, etc.; repair database) for use in determining which items item will need to be used during the repair procedure.

Huang et al. teaches determining based on a plurality of demand information such as equipment failure rates at which one of the geographic locations items need to be positioned, as discussed above.

While Kirkevold et al. and Huang et al. teach the positioning (stocking, procuring, etc.) of items necessary for a repair procedure based on a plurality of factors including but not limited to estimated equipment failure rates (i.e. the rate at which the failed items will necessitate repair/replacement) neither Kirkevold et al. nor Huang et al. expressly teach that the items are stocked/positioned based on a calculated a *probability* that each of the items will need to be used during the repair procedure as claimed.

Graves, teaches a well-known method for calculating a probability that an item and/or set of items will need to be used during the repair procedure (Paragraphs 2-3, Page 1335; Equations 1-3) in an analogous of equipment repair management for the purposes of determining the items (spare part kits) to be positions (carried) by service technicians that minimize inventory investment/cost (Abstract, Paragraph 1, Page 1334; Paragraph 3, Page 1335).

It would have been obvious to one skilled in the art at the time of the invention that the transaction network for determining positioning of items within a supply chain that is distributed over a plurality of geographic locations as taught by the combination of Kirkevold et al. and Huang et al., with its ability to position items necessary for a

repair based on factors such as equipment failure rates, would have benefited from calculating a *probability* that each of the items will need to be used during the repair procedure and stocking/positioning the items based on the calculated probabilities in view of the teachings of Graves; the resultant system/method enabling businesses to minimize repair costs (inventory cots, extra trips, repair delays, etc.) by positioning/stocking the "optimal mix" of items (components) at the geographic location that the repair procedure is conducted (Graves: Abstract; Paragraph 1, Page 1334).

Regarding Claim 14 Kirkevold et al. teach a supply chain system and method further comprising populating the equipment knowledge base (file, database, etc.) from information extracted from the system (customer maintenance system, subsystem, program, code, object, etc.) to generate repair orders and provide information related to/used in performing the equipment repair (e.g. previous repair history, service bulletins, etc.; Figure 1) wherein repair histories commonly enable technicians to better understanding of the equipments current repair needs.

Kirkevold et al. does not expressly teach utilizing the knowledge base information to calculate the probability that each item will need to be used during the repair procedure as claimed.

Huang et al. teach determining and utilizing equipment failure rates, activity schedules and other equipment information to position items in the repair supply chain

based on historical data (Column 14, Lines 21-36; Column 16, Lines 4-68) in an analogous art of equipment repair management for the purposes of determining the demand for items required to be position prior to the commencement of a repair.

Neither Kirkevold et al. nor Huang et al. expressly teach calculating a *probability* that each of the items will need to be used during the repair procedure as claimed.

Graves, teaches a well-known method for calculating a probability that an item and/or set of items will need to be used during the repair procedure based on the probability that an item/equipment/part will fail (Paragraphs 2-3, Page 1335; Equations 1-3) in an analogous of equipment repair management for the purposes of determining the items (spare part kits) to be positions (carried) by service technicians that minimize inventory investment/cost and/or increasing the probability of having the parts necessitated by the repair at the commencement of the repair (Abstract, Paragraph 1, Page 1334; Paragraphs 2-3, Page 1335).

It would have been obvious to one skilled in the art at the time of the invention that the transaction network for determining positioning of items within a supply chain that is distributed over a plurality of geographic locations as taught by the combination of Kirkevold et al. and Huang et al., with its ability to position items necessary for a repair based on factors such as equipment failure rates, would have benefited from calculating a *probability* that each of the items will need to be used during the repair

procedure and stocking/positioning the items based on the calculated probabilities in view of the teachings of Graves; the resultant system/method enabling businesses to minimize repair costs (inventory cots, extra trips, repair delays, etc.) by positioning/stocking the "optimal mix" of items (components) at the geographic location that the repair procedure is conducted (Graves: Abstract; Paragraph 1, Page 1334).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Dye, U.S. Patent No. 4,459,663, teach a work order system and method for allocation inventory stock to work orders wherein inventory/part data is extracted from entered work orders.

- Asahara et al., U.S. Patent No. 5,528,489, teach a system and method for distributing parts to inventory stocking positions (part use positions) in a transaction network.

- Ettl et al., U.S. Patent No. 5,946,662, teach a system and method for optimizing inventory levels in an multi-level, multi-location transaction supply chain network.

- Feigin et al., U.S. Patent No. 6,006,196, teach a system and method for determining parts/component/product replenishment requirements in a multi-echelon distribution network.

- Ettl et al., U.S. Patent No. 6,078,900, teach a transaction network for determining positioning of items within a supply chain that is distributed over a plurality of geographic locations.

- Fantasia et al., U.S. Patent No. 6,742,000, teach a computerized maintenance management system utilizing reliability centered maintenance techniques wherein equipment failures are analyzed and categorized.

- Abdel-Malek et al., U.S. Patent No. 6,959,235, a computerized maintenance management and asset management system for diagnosing equipment failures and recommending repairs wherein the recommendations include the staging/procuring of the parts most likely to be needed for the repair.

- Barber et al., U.S. Patent No. 7,016,774, teach a computerized maintenance management and enterprise asset management system and method wherein the parts needed for a repair are extracted from a work/service order.

- Lowell et al., U.S. Patent Publication No. 2002/0073012, teach a computerized maintenance and asset management system and method wherein the parts needed for

service requests (work orders) are extracted from service request orders prior to the commencement of the repair.

- McCollom et al., Simulation Model for Multi-Level Distribution System Planning (1982), teach a transaction network for determining positioning of items within a supply chain that is distributed over a plurality of geographic locations. McCollom et al. teach a plurality of well known and widely used inventory management (stocking, replenishment) models for multi-level or multi-echelon inventory/distribution systems.

- Gullinan, Tracking Work Orders With A Microcomputer (1984), teaches the old and very well known utilization of computerized maintenance management systems comprising work order management/administration. Gullinan further teaches that the CMMS system "Parts requirements are now flagged so the probability of parts, worker and machine coming together at the right place and the right time is much greater."

- Mamer et al., Job Completion Based Inventory Systems (1985), teaches an inventory management system and method for determining the parts (repair kits, spares) most likely to be used during a repair based on calculated probabilities.

- Katzel, Maintenance Management Software (1987) teaches a plurality of well known computerized maintenance management systems (CMMS) wherein a plurality of the systems include work order administration (generation, tracking, resource scheduling, etc.), parts (suppliers, spares) inventory management/control, parts procurement/purchasing (wherein the parts order are based on information extracted from the repair/work order and based on equipment repair histories, item failure rates and the like), tool box management, parts use tracking and equipment failure diagnosis.

- Cohen et al., Optimizer: IBM's Multi-Echelon Inventory System for Managing Service Logistics (1990), teach a transaction network for determining the position of items within a supply chain that is distributed over a plurality of geographic locations (service logistics, multi-level/echelon inventory management for spare parts, IBM Parts Distribution System) wherein the system/method procures, deploys/position and distributes spare parts inventory through a network of stocking locations based on a plurality of supply and demand information (stock/inventory control policies).

- Cohen et al., Out of Touch With Customer Needs? (1990), teach a system and method for determining the position of spare parts within a supply chain that is distributed over a plurality of geographic locations (service delivery network) comprising parts distribution management, inventory control/policies, material flow control/management, replenishment and inventory positioning and control.

- Lahiri, A Decision Support Modeling System for Minimization of Logistic Support Cost (1992), teach a system and method for managing a multi-echelon parts distribution network wherein the system/method determines parts positioning within the transaction network.

- Langan, Maintenance Automation (1995), teaches a computerized maintenance management system and method wherein CMMS systems "typically includes work order preparation and tracking, equipment history, work scheduling and planning, spare part inventories and purchasing and report generation."

- Agrawal, Planning Models for multi-level distribution systems (1995), teaches several methods for determining the positioning of items (stock positioning, inventory control or service parts) in a distributed supply chain transaction network.

- Ashayeri et al., Inventory Management of Repairable Service Parts for Personal Computers (1996), teach several well known methods and systems for managing a service parts distribution network to support after-sales activities comprising determining the positioning of items as well as the reposition (redistribution) of items (stocks) to meet demand in the multi-level supply chain transaction network.

- Cohen et al., Service Parts Logistics: A Benchmark Analysis (1997) teaches the well-known utilization of service logistics systems to support the "provision of service parts, maintenance and repair services to product end users" wherein the article compares several part distribution network structures and their corresponding inventory stocking policies. Cohen et al. further teach that "one for one replenishment policies that impose a 'pull' philosophy on stock replenishment and stock positioning analysis" are of particular interest in such systems.

- Teachey, What is A CMMS, And Why Should You Care? (1998), teaches the utilization of computerized management systems comprising work order generating, tracking, scheduling, parts purchasing and inventory management. Teachey further teaches that "Your CMMS also checks available labor, available spare parts, the status of equipment, and a host of other data...The software prevents he maintenance supervisor from inadvertently assigning a task with insufficient parts or labor" and that

the "CMMS can schedule the labor and material you need. Therefore CMMS users can coordinate labor efforts and material purchases."

- Lamendola, Beyond Work Orders (1999), teach the availability and use of computerized maintenance management systems comprising work order management, spare parts inventory management/control, labor scheduling, equipment monitoring/diagnosis and predictive as well as preventative maintenance. Lamendola further teaches "Spare parts are an integral part of the repair process; therefore you need to keep a tight control on your spare parts inventory. One benefit of better inventory control is having the right spare parts on hand." and that "Once the supply reaches the assigned 'minimum' level the CMMS generates a purchase order for approval."

- Dilger, Asset Management Exchange Bound (2000), teaches the commercial availability of online maintenance procurement and enterprise asset management systems.

- Botter et al., Stocking Strategies for Service Parts (2000), teaches a system and method for service parts inventory management in a supply chain transaction network wherein the system/method determines which service parts to stock, where are the service parts to be stocked and how many spare parts to stock (distribution network stock control) for each level of the multi-level parts distribution network.

- Cohen et al., Saturn's Supply Chain Innovation (2000), teaches a system and method for determining the position of items in a supply chain transaction network (service-logistics system) wherein "The first actual decision to be made is where to

stock the part and at what level – the "positioning" decision." and "Demand for parts might have their origin in a car crash or other repair incident, routine maintenance, a do-it-yourself project or the needs of a non-Saturn repair-service provider." Cohen et al. further teaches that "Saturn uses a demand-based approach for triggering movement of parts down the supply chain, an approach that recognizes the probabilistic nature of the parts-consumption process."

- Kalakota et al., Readings in Electronic Commerce (1995), teaches the utilization of intelligent agents in supply chain management systems.

- Patton et al., Service Management Principles and Practices (1994), teaches a plurality of techniques and methods for managing product service support.

- Orsburn, Spares Management Handbook (1991), teach a plurality of methods, techniques and systems for managing spare parts in a supply chain transaction network including procurement, provisioning, maintenance, inventory management and replenishment wherein one of the goals of spares management is getting "the right spares, repair parts, and supplies at the time and place they are needed"(Last Paragraph, Page 9; see also Pages xv, 9, 18, 19, 26, 104, 107, 172, 174, 175, 199, 212, 213, 303; Figures 3-1, 3-2, 6-15, 6-16, 9-1, 9-2, 13-1; Table 3-1). Orsburn further teaches "When determining spare part quantities, consider system operational requirements (e.g. system effectiveness, availability) and establish the appropriate level at each location where corrective maintenance is accomplished" (Last Paragraph, Page 199) as well as determining the "range and depth" of the spare parts to be provisioned

in the supply chain based on twelve items including expected replacement rate, probability of failure and depth of stock (Pages 212-213).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott L. Jarrett whose telephone number is (571) 272-7033. The examiner can normally be reached on Monday-Friday, 8:00AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hafiz Tariq can be reached on (571) 272-6729. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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